

# Ginkgo

## Powers up More than the Mind for FMS and ME/CFS symptoms

**I**n matters of the mind and aging, ginkgo biloba extract (GBE) has a proven track record. It is one of the most extensively researched herbs with more than 400 clinical studies. Newer studies reveal GBE's influence on brain chemicals (serotonin, dopamine) and mitochondria, two areas of interest for fibromyalgia and chronic fatigue syndrome. GBE also helps sexual dysfunction related to anti-depressant use and stress. Could GBE help you?

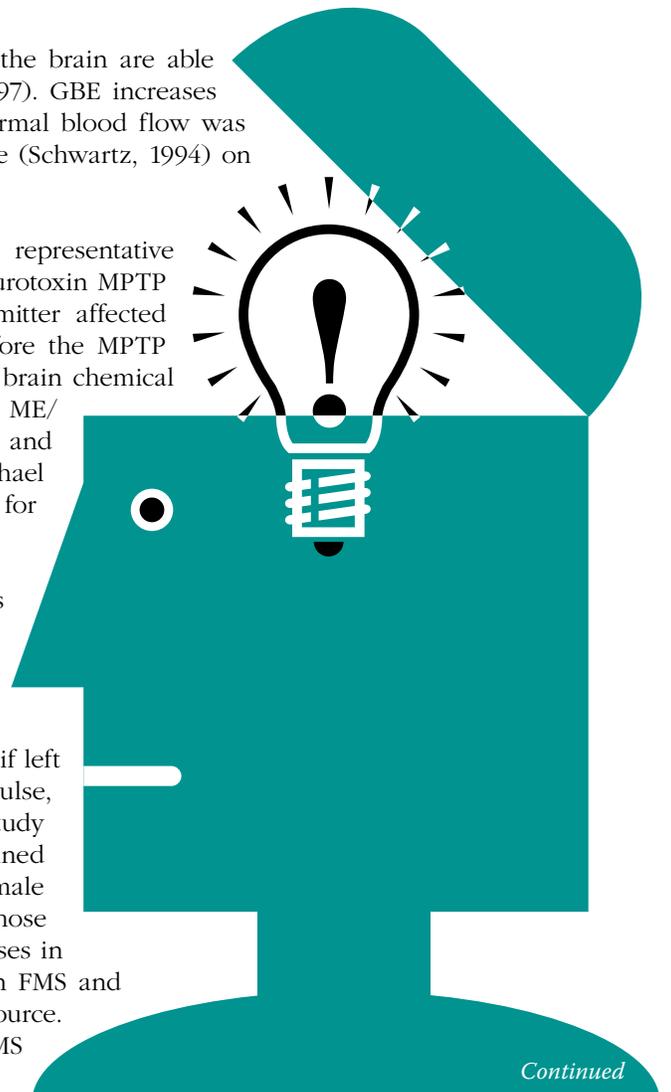
Ginkgo has a long history, especially in China where ginkgo leaves have been used medicinally for centuries. In Europe, where citizens choose between plant medicines and pharmaceuticals, ginkgo has been among the top five herbs sold for the past 20 years. Today the science of standardization guarantees that the beneficial components in clinical studies match those in the products you buy. Look specifically for GBE's most powerful constituents, the flavone glycosides (flavonoids) and terpene lactones (ginkgolides, bibobalides). Flavonoids offer antioxidant protection against free radical damage and terpenoids help improve circulation. GBE is typically standardized to a 50:1 concentrated extract with 24% flavonoids and 6% terpenoids.

### *For Brain, Pain & Stress*

People with cognitive problems due to inadequate blood flow to the brain are able to think and interact with others better with GBE (LeBar et al, 1997). GBE increases circulation of blood, oxygen and glucose to the brain. Since abnormal blood flow was found in fibromyalgia (Mountz, 1995) and chronic fatigue syndrome (Schwartz, 1994) on SPECT and CT scans, GBE may help reduce symptoms of fibrofog.

GBE is also neuroprotective for brain and neurochemistry. In a representative study on dopamine (Wu et al, 1999), mice were injected with a neurotoxin MPTP to stimulate Parkinson's. Dopamine is a "feel good" neurotransmitter affected in Parkinson's and suspected in FMS. Mice treated with GBE before the MPTP showed no adverse affects in dopamine performance. Serotonin, a brain chemical that modifies pain and improves sleep, is typically low in FMS and ME/CFS. GBE increases serotonin receptor sites (Ahlemeyer et all, 1998) and potentially serotonin activity. In fact, according to naturopath Michael Murray, taking GBE with 5-HTP (a serotonin precursor) is helpful for low serotonin syndrome.

Stress, on the other hand, negatively alters brain chemicals norepinephrine, dopamine and serotonin, as well as cortisol. Ginkgo is a known adaptogen, adjusting neurochemicals and hormones to keep the body in balance from internal and external stressors, whether physical, mental or emotional. In other words, GBE tries to keep us "normal". Cortisol is a stress hormone that creates havoc if left unchecked because of its influence on the heart, blood pressure, pulse, immunity and adrenals. A recent double-blind, placebo-controlled study published in the *Journal of Physiology and Pharmacology* examined ginkgo's effects on controlling cortisol in 70 healthy male and female participants. When tested with physical and mental stressors, those given 120 mg per day of a standardized GBE showed lower increases in cortisol levels (and blood pressure) than those given a placebo. In FMS and ME/CFS, adrenal fatigue may be a factor. Pain definitely is a stress source. Again, in doing what GBE does best, it may be a strong ally for FMS and ME/CFS symptoms.



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## Ginkgo *continued*

In another study (Shah et al, 2003), rats were immobilized to induce a stressful state and given GBE. GBE brought brain chemicals back to near normal.

The field of neuroendocrine research is fascinating indeed when looking at how the brain affects other organ functions. In studying the hypothalamic-pituitary-adrenal (HPA) axis, scientists discovered an interesting correlation. According to two studies, high cortisol levels coupled with lower than normal DHEA contribute to aging and cell death (Ferrari 2001, Raber 1998). In the HPA axis, an astute homeostatic balance takes place between the hypothalamus, pituitary and adrenals to regulate body systems such as digestion, immunity, growth, sexuality and metabolism. Dopamine, serotonin and norepinephrine are crucial messengers in this regulatory system. GBE supports the messengers, and thus the systems.

### Mitochondria, Aging & Energy

Mitochondria are another area of suspected dysfunction in FMS and ME/CFS, affecting energy production. Mitochondria are especially susceptible to free radical damage and aging, particularly its DNA. In another mouse study, old mice were fed water enriched with GBE (Sastre et al, 1998). When brain and liver cells were compared to younger mice, size and internal structure were similar in contrast to old mice controls. Besides less genetic damage, the treated mice had higher (antioxidant) glutathione levels, causing the authors to conclude that GBE could protect mitochondria function from oxidative damage.

GBE's terpene lactones enhance energy by increasing glucose absorption and ATP production. Improved blood circulation also increases oxygen and glucose to cells.

In a pilot study specific to fibromyalgia, 200 mg of CoQ10 and 200 mg of GBE were taken daily for 84 days (Lister, 2002). A well-validated quality of life questionnaire evaluated feedback at 4-8-12 week intervals. By self rating, 64% of participants claimed to be better. Based on the progressive improvement and significant difference in scores at the start and end of the pilot, a controlled study is planned.

### Sexual Dysfunction

The Chinese consider GBE an aphrodisiac, capable of boosting sexual ability and desire. GBE increases nitric oxide, the primary messenger molecule which facilitates blood flow to the penis and pelvic area (similar to a leading drug but without the side effects). Anti-depressant SSRIs, which are still prescribed for FMS and ME/CFS, decrease pleasure and libido in women and erection in men. Although sexual dysfunction can be caused by other factors such as age and illness, GBE is a supportive herb for those with circulatory problems. In a 12-18 month study of 60 men with impotency due to impaired blood flow to the penis, 51% had improved flow measurable on duplex sonography; 95% improved by study end, on 60 mg GBE daily. In another

## Just The Facts

**Standardization:** According to American Botanical Council President, Mark Blumenthal, ginkgo is a "very chemically defined extract". Clinical and scientific studies used GBE with 24% ginkgo flavone glycosides, 6% terpene lactones and 3% ginkgolides for maximum benefits. Blumenthal also cautions that a product should have less than 5 parts per million (ppm) of ginkgolic acid, which can cause adverse effects such as contact dermatitis.

**Dosage:** A standard dose is 40-60 mg per day. Optimal dose is 120 mg a day, taken as a single or divided dose. GBE works slowly, so several weeks may be needed to see effects.

**Side Effects:** Rare. A few experience a slight headache or possible vertigo with increased blood flow that subsides over a couple of days. Mild GI distress is also rare.

**Precautions:** GBE has a high safety record. If you are on MAO or blood thinning drugs (coumadin, warfarin), planning a surgical procedure or under medical advice for serious health conditions, consult a physician before using. As with most herbs, do not use if you are pregnant or planning a pregnancy.



study of participants on anti-depressant therapy, ginkgo alleviated erectile failure in 76% of men and increased libido in 91% of women when 80-120 mg of GBE was taken twice daily for just 4 weeks. GBE may be a welcome (and safe) herb in the bedroom.

### Summary

People with FMS and/or ME/CFS may want to try GBE for its cognitive abilities alone. However, Ginkgo powers up more than the mind in its ability to lower neurotoxicity of brain chemicals affecting dopamine and serotonin. Control cortisol and stress. Enhance ATP and mitochondrial function for energy. GBE even helps in the bedroom. Any way you look at Ginkgo, it is one beneficial herb.

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